



# Design Description and Assumptions

To design the museum EER diagram I started with the main entity, ART\_OBJECT. No matter the Art\_type or the owner of the piece, each ART\_OBJECT has a unique id\_no which identifies it within the database. The ART\_OBJECT is split into 4 distinct art types being painting, sculpture, statue, or other. This is displayed through an attribute defined subclass. Another attribute defined subclass identifies the owner of the ART\_OBJECT. This attribute splits all ART\_OBJECTs into two categories, borrowed or part of the permanent collection of the museum. Both specialization subclasses are disjoint and have total participation. The ART\_OBJECT is related to the ARTIST entity with a 1:M identifying relationship. This relationship is an identifying relationship because the ARTIST would not exist in this database without the ART\_OBJECT being there first. This means the artist cannot exist in our database without a corresponding ART\_OBJECT. The cardinality is 1:M, Artist to ART\_OBJECTs, because one artist can create multiple art pieces, however one art piece only has one artist. Furthermore, the relationship has a partial participation on the ART\_OBJECT entity assuming every work of art does not have a known artist. However, every ARTIST has at least 1 ART\_OBJECT which they have created therefore the ARTIST entity has total participation in this relationship. The ARTIST entity is identified through their name, assuming each name is unique. ART\_OBJECTs that are on display in an exhibition, are connected through an ON\_DISPLAY relationship. This relationship has a M:N cardinality assuming multiple exhibitions can be held at one time, and there is multiple ART\_OBJECTs on display in each exhibition. Each exhibition has at least one ART\_OBJECT on display therefore it has total participation. We assume that not every ART\_OBJECT must be on display in an exhibition therefore it has partial participation in this relationship. We are also assuming that every exhibition has a unique name. We also have a M:N relationship between COLLECTIONS and ART\_OBJECTs. This relationship has total participation on both sides as every collection has art within it, and assuming every ART\_OBJECT is part of a collection. The COLLECTIONS entity has a unique name to identify the collection. Assuming the address attribute is the location at which the collection is located at, we assume multiple collections can have the same exact address. To have the exact address, the address attribute is made into a composite attribute.

